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**Comparing quality of reproductive health services
before and after clinic-strengthening activities : A case
study in rural Burkina Faso**

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Introduction

Much literature has been written about improving the quality of reproductive health care at service delivery points (SDPs) because women deserve quality services, and as a means of increasing access to and use of family planning and other reproductive health services. According to the Bruce-Jain quality of care framework, there are six fundamental dimensions of quality of care: choice of methods, information given to clients, technical competence, interpersonal relations, mechanisms to encourage continuity, and appropriate constellation of services (Bruce, 1990; Jain, Bruce and Mensch, 1992). Improving these six elements is thought to increase client satisfaction, resulting in an increase, over time, in contraceptive use, and eventually leading to fertility decline. Existing research, however, has not convincingly demonstrated this link between quality of care and client outcomes.

Training service providers on family planning and communication skills, and improving clinic infrastructure/equipment are ways of touching on and possibly improving aspects of nearly all elements of quality. With this in mind, an intervention in a rural field research station, the *Laboratoire de santé communautaire* (LSC), in the Bazega province of Burkina Faso, was designed to supply reproductive health training and basic medical equipment to thirteen service delivery points. But, do clinic-strengthening interventions have tangible effects on the quality and readiness of service delivery, and if so, do they ultimately effect client load? This paper will explore the effects of such an intervention by comparing pre and post quality of care and readiness indicators and client loads to assess the overall impact at the clinic level.

Background and OR study design

The LSC field research station was created as part of an operations research (OR) project designed by the *Direction de la Santé et de la Famille* (DSF), of the Ministry of Health, the University of Ouagadougou's Demographic Research Unit (UERD), Mwangaza, a local non-governmental organization, and the Population Council. The LSC project site is located in Bazega, a rural province of 5,599 square kilometers, approximately 40 km south of Ouagadougou, the capital of Burkina Faso. The province has 388 villages and a population of 388,562 (Census, 1994). The OR project was designed to test the strength of community-based and clinic interventions on reproductive health knowledge, attitudes and practice, as well as overall contraceptive prevalence in the area.

Table 1 : Study Design		
Cell	Description	Intervention
Zone A	Experimental	Trained clinic staff, increased clinic equipment in November 1996
Zone B	Experimental	Trained clinic staff, increased clinic equipment, and introduced 84 community-based distribution workers in November 1996
Zone C	Control	No interventions, located in neighboring province of Zoundweogo
Zone D	Comparison	Save the Children Federation had a project in this area through September 1997 with paid CBD agents working on FP and child survival activities

The study design consists of four cells—two experimental, one comparison, and one control (table 1). The experimental cells, zones A and B, test two different interventions—clinic-strengthening was provided in both cells with the added component of introducing community-based distribution (CBD) workers in zone B. Zone C is the control group in the neighboring province of Zoundweogo where no interventions occurred, and zone D is a comparison group in Bazega where the non-governmental organization, Save the Children Federation, introduced CBD workers but did not have clinic-strengthening activities.

Methodology and Sample

The scope of this paper is to examine the effects of the clinic-strengthening activities on quality of care indicators using a pre-test-post-test nonequivalent control group design as defined by Fisher et al. (Fisher, Laing, Stoeckel and Townsend, 1991). Since the clinic-strengthening intervention occurred in both zones A and B and did not occur in zones C and D, the zones are combined to form an experimental group (zones A and B) and a comparison group (zones C and D) for analysis. Three sources of data are used: pre and post-test comparison indicators from two sets of Situation Analysis (SA) data, one undertaken in 1995, the second in 1997; and clinic management and information system (MIS) data that spans from November 1995 to September 1997.

The Situation Analysis methodology assesses sub-system functioning and quality at service delivery points (SDPs) by taking an inventory of the SDP's infrastructure, observing family planning (FP) and maternal and child health (MCH) client/provider interactions, interviewing FP/MCH clients after their consultations, and interviewing staff (for an in-depth description of SA methodology see Miller et al. 1997). This analysis focuses on quality and readiness indicators from two sources: the inventory and staff interview. While observations of client/provider interactions provide us with in-depth information, the low frequency of clients visiting the SDPs in this study, combined with different sampling techniques made it difficult to do meaningful comparisons between 1995 and 1997. The 1995 study used a nationally representative sample, while in 1997 only the SDPs in the LSC field station study area were included. This allowed researchers in 1997 to spend 5 days at each SDP and increase the number of observations and client interviews.

Table 2 : SDP sample size and type by zone			
Type of SDP	Experimental zones	Comparison zones	Total
Number of health posts (CSPS)	6	6	12
Number of medical centers	2	1	3
Total	8	7	15

The LSC catchment area contains 21 SDPs altogether, 18 of which are small health posts generally staffed by a head nurse and midwife, the remaining 3 of which are larger, better-equipped medical centers. In 1995, 15 of the 21 SDPs in the LSC area were included in the national survey. In order to compare these two datasets as pre and post intervention markers, only the 15 SDPs, found in both studies, are used for analysis (table 2). While this leaves a small sample size from which it is hard to

calculate statistical significance, this analysis is meant to be descriptive in nature, and to serve as a case study with potential implications for more in-depth research in the future.

Indicators were chosen from the Ministry of Health's list of readiness and quality indicators developed during the 1995 Situation Analysis. Only two indicators were chosen for comparative purposes from staff interviews. For these, the same type of staff members interviewed in the SDPs included in both the 1995 and 1997 datasets were linked. They may not, however, represent the same person. In other words, a doctor interviewed in 1995 at Kombissiri Medical Center, was linked with a doctor interviewed in 1997 in the same SDP, who may or may not have been the same person (n=11 in experimental group; n=7 in comparison). All other discussions of staff are taken from the 1997 data, for which the full dataset for the 21 SDPs in the catchment area were used (table 3).

Table 3. Number of staff interviewed in SA 1997 by type and zone		
Type of staff interviewed	Experimental	Comparison
Doctor	0	1
Nurse	10	4
Midwife	3	1
Clinic attendants	2	1
Community Health Nurses	9	5
Birth Attendants	7	7
Total	26	14

Clinic-strengthening Intervention

Clinic-strengthening activities occurred in November of 1996. These activities consisted of:

- *Supply of equipment:* The Ministry of Health provided the following medical equipment to each of the clinics in the experimental zones: a scale to weigh clients, a blood-pressure gauge, cotton, 200 pairs of gloves, 2 brochures (one on family planning and one on maternal and child health), and contraceptives (condoms, spermicides, pills, and injectables for all, with IUDs added for the medical centers).
- *Training and retraining clinic personnel:* International Training for Health (INTRAH), with funding from USAID, performed a needs assessment of reproductive health training for clinic staff in October to develop an appropriate curriculum. Two personnel at each healthpost (the head nurse and midwife) and 2-3 staff members from the medical centers, then received training over a two-week period in all of the SDPs in the experimental zones. The national guideline on family planning training was used (*Curriculum de formation clinique en planification familiale*, Burkina Faso, January 1989). The objectives of the training curriculum were to impart knowledge on: use of information, education and communication (IEC) materials for targetted groups, providing non-prescriptive methods, prescription and follow up of clients for oral contraception and injectables,

follow-up of intra-uterine device (IUD) and Norplant® users, STI/HIV/AIDS management, improving the information given to FP clients, and increasing the information given to clients on infertility.

- *Supervision:* The District Medical Teams were encouraged to provide supervision to the experimental clinics every 3 months, and they in turn were to receive supervision every 3 months from the regional and national offices. Motorbikes and fuel were therefore provided to clinics in the experimental zones.

Difficulties encountered

While providing basic equipment and training personnel were successfully implemented, difficulties arose with increasing supervisory visits. The fuel provided to clinic staff was often insufficient for them to regularly visit the District Teams, and supervisors found it difficult to integrate visits into their busy work schedules.

Key Findings

Infrastructural Indicators

Table 4 describes and lists the indicators chosen for analysis. The first indicator shows whether or not the SDP had minimal equipment necessary to provide family planning services. In 1995, 2 out of the 8 SDPs (25%) met this criteria in the experimental zone, versus 2 out of 7 (28%) in the comparison group. Both groups show a slight improvement in 1997, with 4 out of 8 SDPs (50%) in the experimental zone having the minimal equipment necessary for FP services, and 3 out of 7 (43%) in the comparison group doing so (graph 1). Given that all of the SDPs in the experimental group were provided with nearly all of the equipment under question, one would have expected the experimental group to have increased closer to 100% of the SDPs meeting this criteria post-intervention.

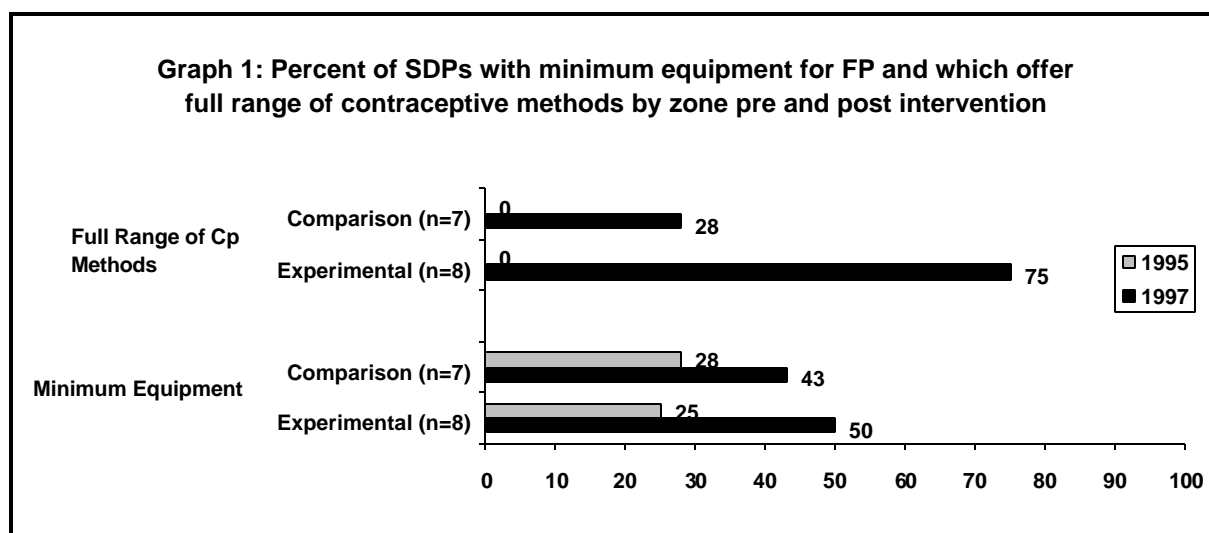


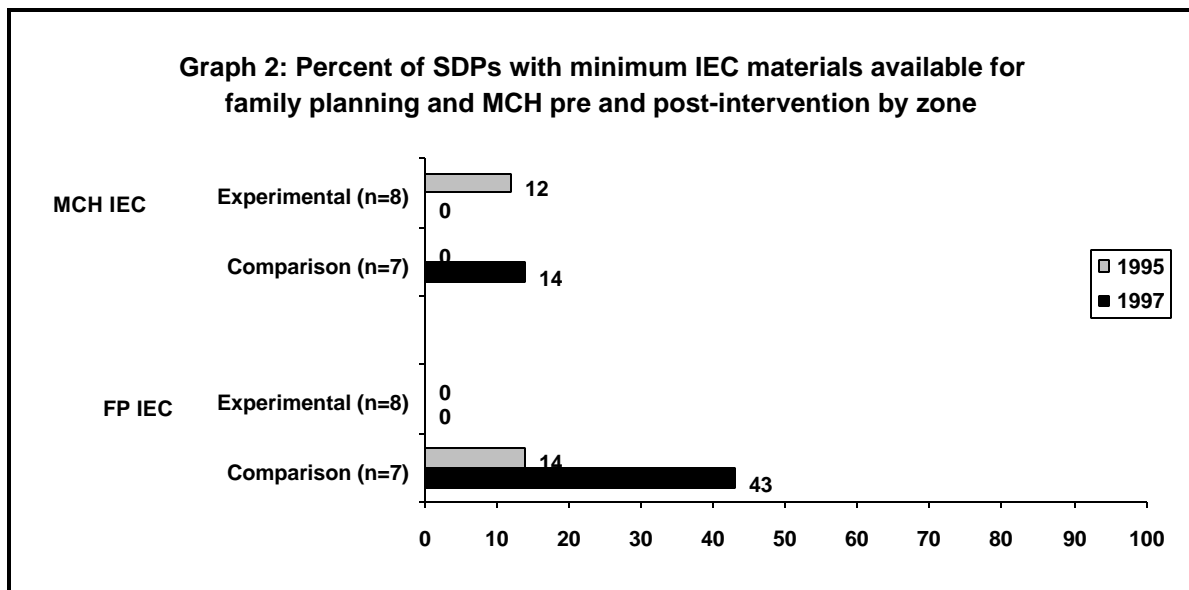
Table 4. Indicators used	Source	Experimental		Comparison	
		Pre	Post	Pre	Post
1. % of SDPs with minimum equipment necessary of FP services (scale, bp gauge stethoscope, speculum (GM, PM or moyen) light source, gloves or doitiers	Inventory	25% 2/8	50% 4/8	28% 2/7	43% 3/7
2. % of SDPs offering full range of contraceptive methods one type pill, injectable, condoms, sperimicide and for CMs IUDs	Inventory	0% 0/8	75% 6/8	0% 0/7	28% 2/7
3. % of SDPs without any stockouts of methods offered in last 6 months	Inventory	38% 3/8	25% 2/8	58% 4/7	58% 4/7
4. % of SDPs offering prenatal consultations	Inventory	100% 8/8	88% 7/8	100% 7/7	100% 7/7
5. % of SDPs offering postnatal consultations	Inventory	62% 5/8	75% 6/8	86% 6/7	71% 5/7
6. % of SDPs with adequate FP IEC one flip chart, one poster on wall, and one brochure	Inventory	0% 0/8	0% 0/8	14% 1/7	43% 3/7
7. % of SDPs with adequate MCH IEC one flip chart, one poster on wall, and one brochure	Inventory	12% 1/8	0% 0/8	0% 0/7	14% 1/7
8. % of SDPs who received a supervisory visit in the last 6 months	Inventory	25% 2/8	50% 4/8	28% 2/7	14% 1/7
9. % of staff who correctly advise breastfeeding clients on FP (using same type of provider in same SDP)	Staff	64% 7/11	55% 6/11	100% 7/7	71% 5/7
10. % of staff having received training in breastfeeding	Staff	na	65% 17/26	na	79% 11/14
11. % of staff who systematically inform pregnant women of the advantages of breastfeeding	Staff	na	54% 14/26	na	79% 11/14
12. % of staff having received training in clinical FP and FP IEC	Staff	9% 1/11	27% 3/11	14% 1/7	28% 2/7
13. % of staff having received training in STD/HIV IEC	Staff	na	73% 19/26	na	29% 4/14
14. % of staff having received training in clinical STD/HIV	Staff	na	38% 10/26	na	50% 7/14
15. % of staff asking at least one question relating to possible STD/HIV status to clients	Staff	na	42% 11/26	na	36% 5/14

Notes: na= not applicable, staff were not asked these questions in 1995.

Having a full choice of contraceptive methods is considered an important element of quality services. The next indicator measures if changes occurred in the percent of SDPs who offered the full range of contraceptive methods. This indicator, based on the availability of methods typically found in Burkina Faso, was defined as at least one type of pill, injectable, male condoms, spermicide and, for the 3 medical centers, IUDs. As was to be expected, the number increased in the experimental zone from 0% in 1995 to 75% with the full range of contraceptive methods available in 1997. In the comparison group, an increase was seen as well, albeit a less dramatic one, from 0% to 28%.

While an increase in the amount of methods offered is beneficial to the client, whether or not the method is actually available and *on site* must also be taken into account. The third indicator, therefore, looks at the number of SDPs which had experienced stockouts in the 6 months prior to the survey for the contraceptive methods offered. The majority of SDPs in the experimental group had in fact experienced stockouts both in 1995 and in 1997 (62% and 75% respectively). The comparison group remained the same with 4 out of 7 SDPs always having the methods they offer on site in both 1995 and 1997.

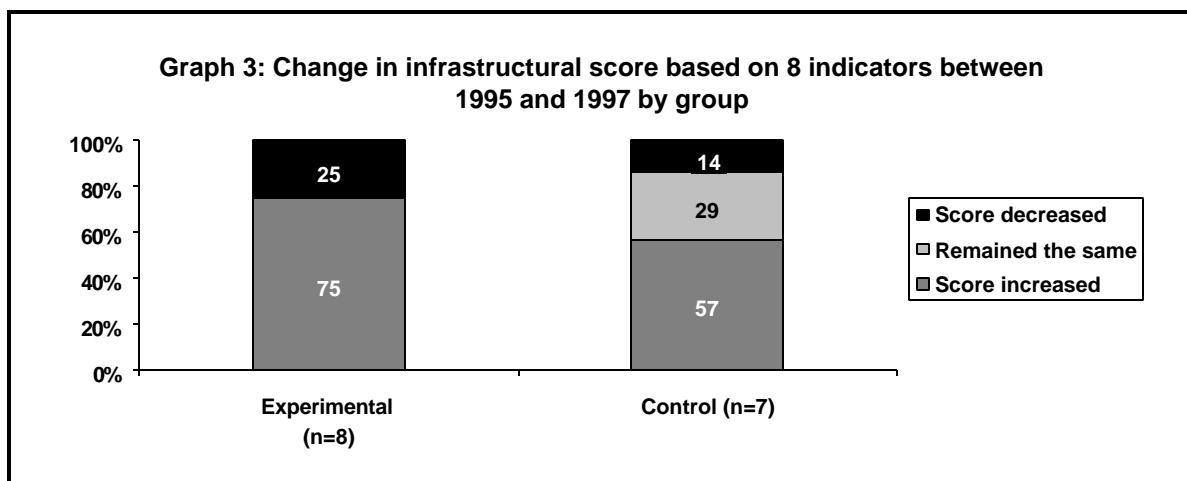
Since Save the Children Federation had been working in the comparison area on MCH activities, indicators for the percentage of SDPs offering prenatal and postnatal consultations were chosen. All of the SDPs in both the experimental and comparison groups reported offering prenatal consultations in 1995. One SDP from the experimental group no longer offered them in 1997, with the others continuing to offer prenatal consultations. More variation was seen in postnatal consultations, which increased by one SDP in the experimental group—from 5 SDPs in 1995 to 6 SDPs—and went down by one in the control group from 6 SDPs to 5.



As one of the key elements of the intervention was providing IEC training and materials, the next two indicators look at availability of IEC materials for family planning and maternal and child health. These indicators were defined as the percentage of SDPs that had at least one flipchart, one poster on the wall of the SDP and one brochure on family planning, and similarly one of each for MCH. While brochures had been provided during the intervention, flipcharts and posters had not. None of the SDPs in the experimental group met this criteria for FP in either 1995 or 1997, and the one SDP which had sufficient IEC materials on MCH in 1995 did not in 1997 (graph 2). In the comparison group, the IEC situation improved slightly, increasing from 14% to 43% of the SDPs having adequate family planning IEC and from 0% to 14% for MCH materials.

Supervision of clinic activities is necessary if the quality of services is to be improved and maintained. The number of SDPs who received a supervisory visit in the 6 months prior to the survey rose from 2 to 4 SDPs in the experimental group and decreased from 2 to 1 SDP in the comparison group. Supervision did not strongly increase in the experimental group due to the difficulties encountered in implementing this aspect of the intervention.

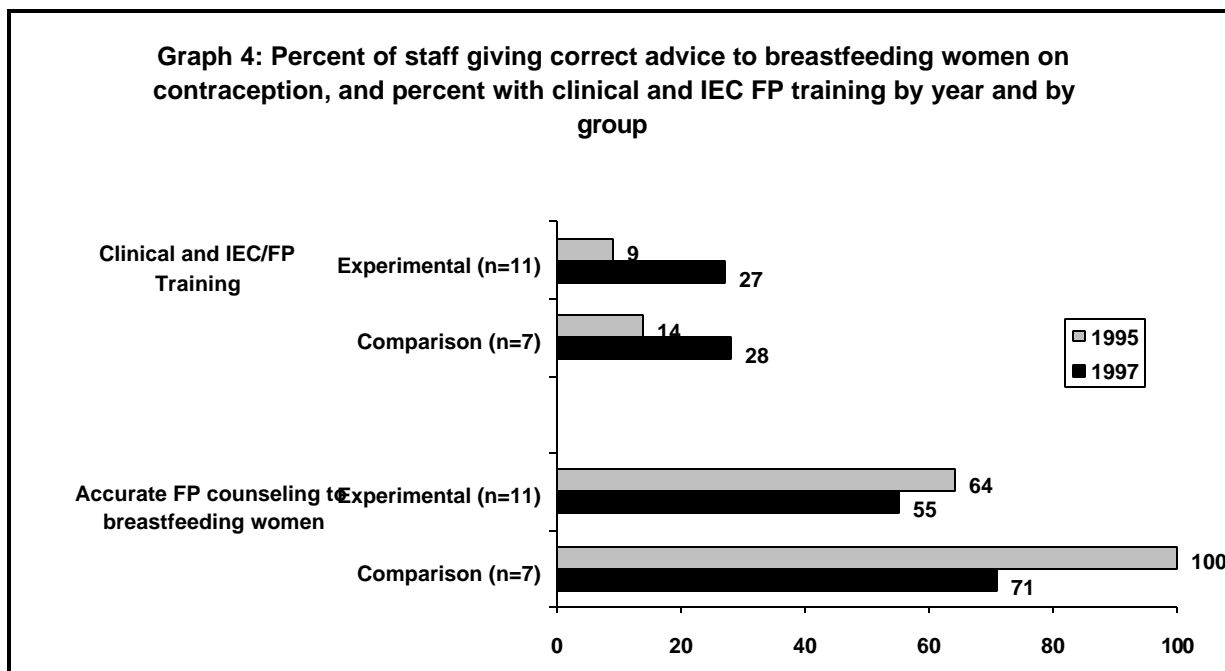
Based on the eight infrastructural indicators taken from the inventory of the Situation Analysis studies discussed above, a scale from 0 to 8 was created to better discern net gains or losses in sub-system functioning described by these indicators. The scores ranged from 1 to 4 in 1995 and from 1 to 5 in 1997: none of the SDPs in either the experimental or comparison group met all 8 of the criteria. The majority of SDPs (6 out of 8) in the experimental group increased in their overall scores by 1-3 points in 1997, while 2 decreased their overall score (graph 3). In the comparison group as well, the majority increased their overall scale (4 out of 7) with 2 remaining the same and 1 scoring lower. However, it should be noted that the scores were still quite low—only 3 out of 8 of the SDPs in the experimental zone met at least half of the critical indicators (with a score of 4 or higher), both before and after the intervention. In the comparison area, the number that met at least half of the criteria rose from 3 to 4 of the 7 SDPs. The mean scores show a net increase from 2.6 to 3.6 in the experimental group post-intervention and from 3.0 to 3.4 in the comparison group.



Staff Indicators

In addition to the inventory indicators, seven indicators from the staff interview were chosen, of which only 2 can act as pre and post comparisons. The remaining indicators give an indication of the quality in 1997, when one would expect high quality in the experimental group. It should be noted, however, that there were staff changes after the intervention training, particularly in zone B of the experimental group.

As seen in graph 4, before the intervention 64% of the staff in the experimental areas gave correct advice on family planning methods to a breastfeeding mother.¹ This number decreased to 55% after the intervention among the same type of providers interviewed in the SDPs. In the comparison group, 100% of the staff gave correct family planning advice to breastfeeding women in 1995, and 71% did so in 1997.



Only 9% of the staff in the experimental group had received training in both clinical family planning procedures and family planning IEC before the intervention, 27% reported having received such training after the intervention. Fourteen percent of the staff in the comparison group reported such training in 1995, which increased to 28% in 1997. One would have expected a greater difference in the experimental group since the intervention consisted of such training. However, as noted earlier, only two staff members were trained in each site, and additionally, staff did not necessarily view the training during the intervention as 'formal' training. This highlights the fact that this may not be an effective indicator, as staff have varying perceptions of what constitutes training. Furthermore, as a measure of quality, training does not necessarily translate into improved practice (Ndhlovu, 1998).

¹ Correct breastfeeding advice was defined as providers told the mother to continue breastfeeding and supplied progesterone only pills or catered their advice to the age of the child.

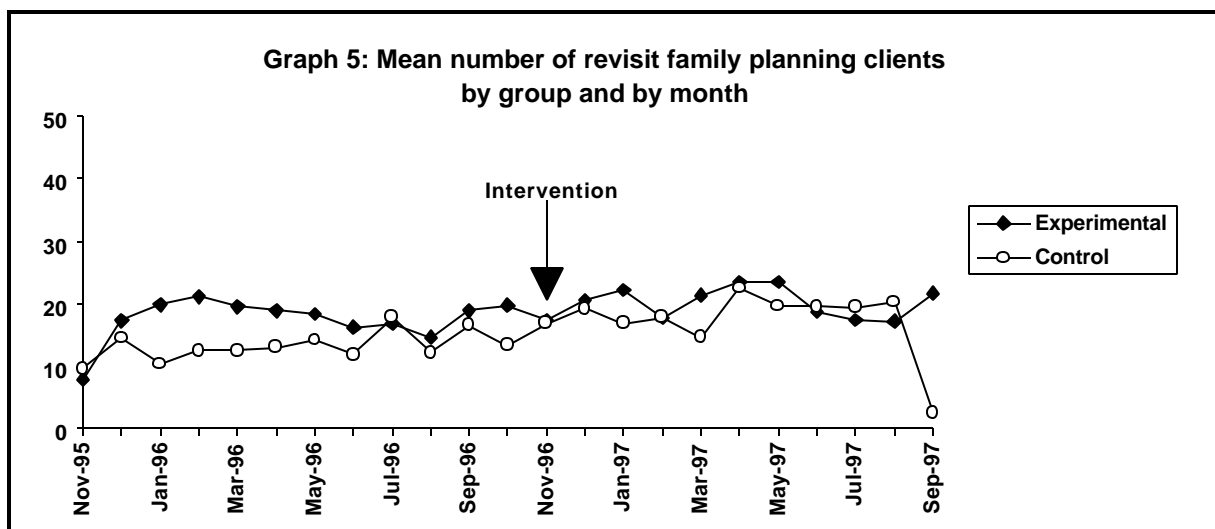
In 1997, staff in the comparison groups seemed to be more sensitized to breastfeeding issues, most likely due to the efforts of Save the Children Federation, with 79% of the staff in the comparison group having received training in breastfeeding, versus 65% in the experimental group. Similarly 54% of the staff in the experimental group systematically informed women of the advantages of breastfeeding, while 79% in the comparison group did so.

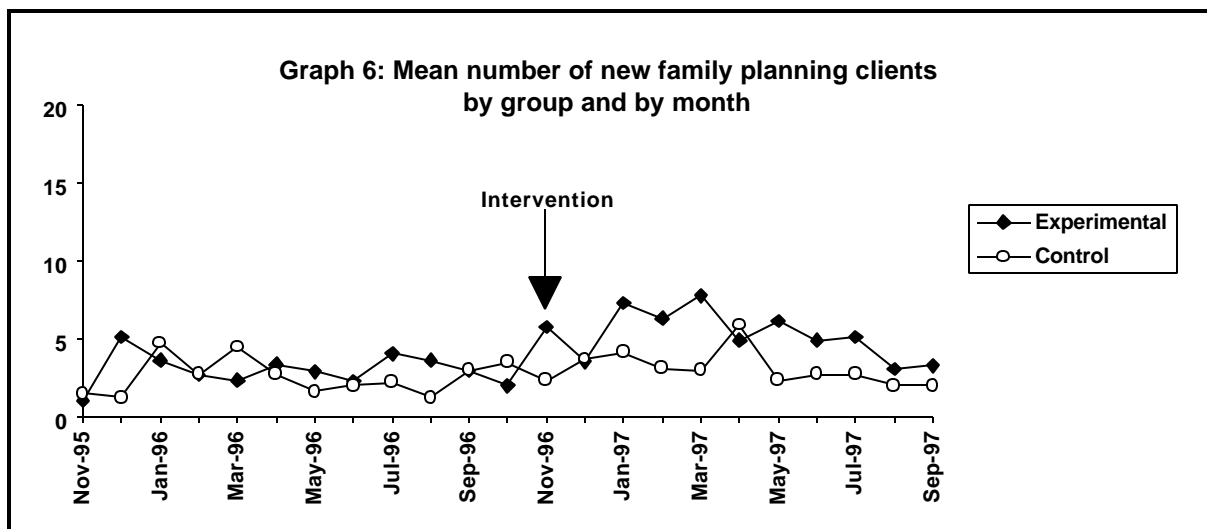
On the other hand, staff in the experimental group seemed to be slightly more sensitized to STI/HIV issues. The percent of staff having received training in STI/HIV IEC was higher in the experimental group than the comparison—73% and 29% respectively. Forty-two percent of the staff in the experimental group reported asking at least one question to clients relating to STI/HIV status, while 36% in the comparison group reported doing so. However, 50% of the staff in the comparison area had received training in clinical management of STIs/HIV versus only 38% in the experimental group.

Client Load

In general, the situation analysis indicators suggest that the quality of care improved slightly in the SDPs in the experimental area, although not distinctly more so than in the comparison area.

The clinic MIS provides the unique opportunity to test if the clinic-strengthening activities had an explicit effect on family planning client load as well. As seen in graphs 5 and 6, the mean number of family planning clients, both new and revisits, is slightly higher in general in the experimental clinics. This is due to the fact that two medical centers are found in this group, versus only one in the control group. The intervention, however, appears to have had an effect on new clients in the experimental group (graph 6), particularly in the 3-4 months following the intervention. In the experimental clinics, the mean number of new clients increased from 3.2 pre-test to 5.3 post-test, a 62% increase. The mean number of new clients rose from 2.6 to 3.2 in the control group for only a 23% increase. This suggests that the intervention may have had an impact on the number of new family planning clients. However, for revisit clients the control group increased by 28% (from 13.5 to 17.2 revisit clients per month) compared to a 17% increase in the experimental group (from 17.4 to 20.4).





Conclusion and Recommendations

The clinic-strengthening intervention did not have as significant an impact on readiness and quality of services as had been anticipated, making it difficult to study the effects on client load. However, lessons were learned on how to improve clinic strengthening efforts in the future:

Finding : Basic equipment/materials

The SDPs in the LSC study area did not show as marked an improvement as was expected for having the minimum materials necessary to provide quality FP services. This finding suggests that providing equipment does not always translate into higher sub-system functioning over time. One explanation for this could be that the materials provided were not adequate. For example, during the intervention only one brochure on family planning and one on MCH were given to each SDP—this was probably not an adequate number to have a significant impact.

Recommendation : When equipment and materials are provided to SDPs, efforts need to be made to create a small surplus for these materials, as well as ensure that there is a functional system in place to replace broken, stolen or lost items. This requires strengthening supervision and management of stock and equipment, as well.

Finding : Contraceptive methods

While more methods were available in the experimental groups after the interventions, the number of stockouts also increased. These two findings taken together show that the number of contraceptive methods available to a client on site on any given day was not necessarily influenced by the introduction of a new method (injectables).

Recommendation : Introducing new methods at SDPs need to be coupled with strengthening systems of stock provision for all of the methods (old and new) offered at the SDP.

Finding : Staff training

The provider training undertaken by the LSC in zones A and B, and by Save the Children Federation in zone C, did not systematically increase staff knowledge on RH issues.

Recommendation : While providers may have theoretical knowledge, they may not practice it when observed. Training, therefore, needs to be an interactive process in which supervisors and trainers are regularly involved in the assessment of training needs, and in observing client/provider interactions over time.

Finding: Number of clients

Despite the fact that the clinic strengthening intervention did not have as strong an impact on quality of care indicators as had been expected, the slight impact that it did have corresponded with a slight increase in the number of new family planning clients. Although, this analysis does not allow us to prove a direct causal relationship between the two, it suggests that clinic strengthening is a worthwhile intervention.

Recommendation: Devising a methodologically strong operations research project to explore the link between clinic strengthening activities, quality of care, and client load, is needed.

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